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OCCUPATIONAL ILLNESSES AND INJURIES DUE  
TO PESTICIDES CONTAINING 1,3-DICHLOROPROPENE  
AS REPORTED BY PHYSICIANS IN CALIFORNIA  
IN 1976 AND 1977

By

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SUMMARY

During the years 1976 and 1977, there were 26 cases of occupational injuries and illnesses reported by physicians as being due to pesticides containing 1,3-dichloropropene in California. Thirteen cases occurred each year. In the two years, there were six systemic illnesses, 11 eye injuries, seven skin injuries, and two skin and eye injuries. None of these incidents are known to have caused permanent disabilities. Two workers were hospitalized for injuries caused by these pesticides.

Information for this report was obtained from Doctor's First Reports of Work Injury and subsequent investigations by the members of the local county agricultural commissioner's staff.

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## INTRODUCTION

The chemical 1,3-dichloropropene is an active ingredient in many pesticides used as soil fumigants. The main pesticides of this type involved in work-related injuries in this study were Telone II and D-D Soil Fumigant. Several million pounds are injected into thousands of acres of soil in California each year.

Most products containing 1,3-dichloropropene are toxicity category 1 pesticides. Inhalation can lead to headaches, nausea, vomiting, coughing and chemical pneumonia. Excessive exposure may lead to effects on the central nervous system. Skin and eye contact with this chemical can result in severe skin and eye irritations.

Due to the dangers involved with this material, pesticides containing 1,3-dichloropropene should be handled with closed systems. There is no protective clothing material that is completely impervious to this chemical.

## 1976 CASE STUDIES

In 1976 there were 13 cases of occupational injury reportedly due to pesticides containing 1,3-dichloropropene in California. Of these cases, five were systemic illnesses, four were eye injuries, three were skin injuries, and one was both skin and eye injury.

### Suspected Systemic Illnesses

A policeman at the scene of an accident was exposed to Telone II fumes from a fire. Later he began to experience difficulty in breathing and tightness in his chest. He was taken to a physician who noted he had harsh chest rales and a red infected throat. The policeman was treated with an injection of Ampicillin and a prescription for prednisone. He was advised not to return to work for ten to fourteen days.

A warehouseman was supervising the unloading of Telone II from a tank truck. He was not wearing a respirator and was exposed to the fumes from a spill. Later that day he became nauseated with abdominal cramps. He was taken to a physician who treated him with an atropine injection and Donnatal. The worker missed one day of work due to this illness.

While unloading a tank truck, the truck driver was exposed to Telone II fumes when the hose broke. Apparently, the truck driver was not wearing a respirator. The worker was hospitalized for 24 hours following the accident.

A tractor driver was cultivating a field two hours after it had been fumigated with DD Soil Fumigant. Later he developed a headache and felt it might have been pesticide related. He was not wearing any safety equipment, as it was not required. He was taken to a physician who treated the worker and advised him to stay home for three days.

A man working in a formulation plant had Telone spilled on his leg, face and hands. He washed immediately. Later he complained of a heavy feeling in his chest and was taken to a physician. The worker did not miss any days of work.

#### Eye Injuries

A worker was rearranging shanks on a soil fumigation rig when a hose pulled loose. A small amount of Telone II splashed into the eye. He rinsed the eye immediately and was taken to an emergency room. His injury was diagnosed as chemical conjunctivitis. The worker was treated and released. The worker was not wearing goggles when the accident occurred.

While fumigating a field with Telone, a hose broke, spraying the applicator on the face. He was taken to a physician who diagnosed the injury as mild chemical conjunctivitis. The worker was treated with Ophthalmic Cortisporin solution and advised not to return to work for two days.

A worker, testing Telone in a plant laboratory, got some of the material on his hands and then rubbed his eyes. He was immediately taken to a physician. The injury was treated with an eye wash, ophthalmic drops and chloromycetin ophthalmic ointment. He returned to work the next day.

A laborer had rinsed a spray rig out four times. While driving the rig back to the shop a hose broke causing Telone II to splash on the worker's face. He was taken to a physician when his eyes began to burn. He was treated in an emergency room and released.

#### Skin Injuries

While pumping Telone II into a tractor tank, some of the material spilled on a man's boots. He did not remove his boots and later developed a rash. His chemical burn was treated by a physician. He did not return to work for two weeks.

A hose loosened and some Telone dripped on the boot of a worker while he was putting a full container on the tractor. He developed second degree chemical burns on his foot and ankle. He was treated at a clinic and released.

A hose pulled off the pump while a warehouseman was hooking it up to a truck for transfer of the material. He had Telone spill on his leg and foot. He was taken to a physician who treated the injury with a Kenalog injection and a prescription for Benadryl. The worker missed two days of work because of the injury.

#### Skin/Eye Injuries

A worker was loading Terr-o-cide 30D on a tractor rig when some of the material splashed on his face and eye. His eyes, face and arms began to burn soon after the incident. He was taken to a physician who washed

the exposed areas with Betadine and applied a hydrocortisone cream to the arm.

### 1977 CASE STUDIES

In 1977, there were 13 cases of worker injuries caused by pesticides containing 1,3-dichloropropene reported by physicians in California. There was one case of systemic illness, seven cases of eye injury, four cases of skin injury and one case of skin and eye injury.

#### Suspected Systemic Illnesses

A fumigator injected D-D mixture into the soil for a day. He became weak and developed blisters of his feet and legs. He went to a physician two days after the exposure. He was treated and advised not to return to work for one week.

#### Eye Injuries

A fumigation rig had been cleaned, but some Telone remained in the injection lines. While trying to unplug the lines, a coupling came loose under pressure, spraying a worker in the eye. He washed his eyes out and was taken to a physician. His injury was diagnosed as conjunctivitis and treated. No permanent disability resulted from this injury.

While working on a chemical tank on a tractor, a mechanic was sprayed in the face with Telone II when a hose came loose. As he turned to leave, he caused Telone II to spray in the eyes of another mechanic. One worker was hospitalized for one day. Both injuries were diagnosed as chemical conjunctivitis and corneal abrasion.

A foreman was repairing a hose. He removed the hose while still under pressure and was sprayed in the eye with Telone. His injury was diagnosed as a chemical burn and conjunctivitis and was treated with Pontcaine and Neosporin ointments.

While removing a hose from the bottom of a tank, the Telone left in the hose fell on a worker's face. He developed a conjunctival irritation which was treated with ophthalmic drops. No work was missed because of this incident.

A fumigator was loading his rig with Telone II from a bucket when the material splashed onto his face, dislodging his goggles. He later complained of burning eyes. He was taken to a physician who irrigated the eyes with saline. Apparently, this man's goggles were loose on his head and therefore not very effective.

A worker reportedly got Telone II in his eyes while working. The employer claimed that the employee had not worked for him in over a year. Due to this conflict, it was not possible to investigate this case.

### Skin Injuries

A hose coupling came loose while a fumigator was applying the chemical. The worker was sprayed in the face with D-D Soil Fumigant. His injury was diagnosed by a physician as chemosis of the eyelids and was treated with Neosporin ointment.

A foreman was repairing a hose and spilled Telone II on his boot. He did not remove his boot until he noticed a burning sensation on this foot. He then replaced the boot and went to an emergency room. A physician diagnosed the injury as a chemical burn. The worker was treated and released without missing any work.

A worker was applying D-D soil fumigant and developed a rash on his arms and legs. A physician treated the resulting dermatitis and released the worker.

An inspector was checking a field recently treated with Telone and he developed a rash on his hands and feet. His rash was treated with Caldecort, Fulvicin and Ampicillin.

### Skin and Eye Injury

A warehouseman developed an eye and skin injury due to exposure to a pesticide containing 1,3-dichloropropene. He missed one day of work because of his injury. Further information on this case was not available.

## DISCUSSION

Most of the injuries and illnesses reported by physicians in California as being due to pesticides containing 1,3-dichloropropene were the result of spills, faulty equipment or worker carelessness. Eight cases were caused by faulty equipment, six cases were caused by worker carelessness, and six cases were resulted from spills.

One worker splashed Telone onto his face while hand loading it from a bucket. This material should always be handled with closed system transfer devices. Employees should also be informed of the dangers involved with this material.

There is no available protective clothing material that is completely impervious to 1,3-dichloropropene. When a worker's clothing comes in contact with this material, he should immediately remove the clothing and wash the exposed area completely. Two men spilled Telone on their boots and did not remove them until they noticed a burning sensation on their feet. One was unaware of the danger.

Application equipment should be checked often for weak hoses, loose couplings and leaks. Faulty equipment was the cause of several incidents. Many of these might have been prevented by frequent equipment checks. When a weak hose or loose coupling is found, it should be fixed immediately.

"Employee carelessness" was also the cause of several incidents. A couple of men were exposed when they removed a hose to fix it while it was still under pressure. One worker removed a hose from the bottom of a rig before it was empty and the pesticide dripped onto his face. Employee carelessness can result from incomplete training, or inadequate supervision.

When any significant exposure occurs, the worker should immediately wash, report the incident to his supervisor and then be taken to a physician.

A detailed Pesticide Information Series guideline is available from this Department concerning safe use of this chemical.

TABLE 1

OCCUPATIONAL INJURIES DUE TO 1,3-DICHLOROPROPENE  
REPORTED BY JOB AND INJURY IN 1976 AND 1977

	<u>1976</u>	<u>1977</u>	<u>TOTAL</u>
<u>Systemic</u>	5	1	6
Field Fumigator	0	1	1
Manufacturing	1	0	1
Policeman	1	0	1
Tractor driver	1	0	1
Warehouse/truck loading	2	0	2
 <u>Eye</u>	 4	 7	 11
Cleaner/repairer	2	5	7
Field Fumigator	1	2	3
Manufacturing	1	0	1
 <u>Skin</u>	 3	 4	 7
Cleaner/repairer	0	1	1
Field Fumigator	1	2	3
Mixer/loader	2	0	2
Field Inspector	0	1	1
 <u>Skin/Eye</u>	 1	 1	 2
Field Fumigator	1	0	1
Warehouse/truck loading	0	1	1

TABLE 2

DISABILITY RESULTING FROM INJURIES OR ILLNESSES  
CAUSED BY PESTICIDES CONTAINING 1,3-DICHLOROPROPENE

	<u>1976</u>	<u>1977</u>	<u>TOTAL</u>
Days Hospitalized			
1	1	1	2
Days of Work Missed			
0	4	5	9
1-2	3	3	6
3-5	1	0	1
5-7	0	1	1
8-14	3	1	4
Unknown	2	3	5